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09/804,328	03/12/2001	James M. Chen	4488	1020

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EXAMINER

JOHNSON, EDWARD M

ART UNIT

PAPER NUMBER

1754

DATE MAILED: 04/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/804,328

Applicant(s)

CHEN ET AL.

Examiner

Edward M. Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 10-16 and 18-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10-16 and 18-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 10-16, and 18-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Fetzer et al. WO 97/10042 (translated in US 6,056,928).

Regarding claim 1, Fetzer '928 discloses a method of removing nitrogen oxides from a gas flow comprising contacting the flow with a beta zeolite and ammonia (see column 4, lines 14-21 and 37-41).

Regarding claims 2-4, Fetzer discloses 450-500 and 150-500 degrees Celsius (see column 3, lines 31-34 and column 4, lines 61-62).

Regarding claims 10-11, Fetzer '928 discloses copper exchanged beta zeolite (see column 4, lines 14-21).

Regarding claims 12-14, Fetzer '928 discloses 1-13% N₂O (see column 3, lines 40-45).

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Regarding claims 15-16 and 19, Fetzer '928 discloses Fe, Rh, Ru, and Pd catalysts for both NO_x and N₂O reduction (see column 4, lines 10-13, 20-21, and 51-54).

Regarding claims 20-21, Fetzer '928 discloses adsorption of NO_x other than nitrous oxide in Stage A (column 2, lines 43-47), adsorption of N₂O in Stage B (see column 3, lines 20-21), followed by adsorption of NO_x other than N₂O in Stage C (see column 4, lines 27-36).

3. Claims 1, 10-11, 15-16, and 18-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Staniulis et al. US 4,867,954.

Regarding claims 1, 10-11, 15-16, and 18-21, Staniulis '954 discloses catalytic reduction of nitrogen oxides including nitrous oxide using ammonia and copper exchanged beta zeolite catalysts (see abstract, Examples, and column 4, line 35).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

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5. Claims 1-4, 10-16, 18-19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riley et al. US 5,200,162 in view of Fetzer '928.

Regarding claims 1 and 18, Riley '162 discloses a process for nitrous oxide decomposition comprising contacting a nitrous oxide and NOx stream with ammonia and zeolite (see column 4, lines 34-38 and column 8, lines 48-51).

Riley '162 fails to disclose beta zeolite.

Fetzer '928 discloses beta zeolite (see above).

It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the beta zeolite of Fetzer in the nitrous oxide decomposition process of Riley because Fetzer discloses his beta zeolite as particularly suitable to make possible the reduction or decomposition of nitrous oxide (see column 4, lines 14-23).

Regarding claims 2-4, Riley '162 discloses 250-650 degrees Celsius (see Example 10).

Regarding claims 10-11, Riley '162 discloses iron-exchanged zeolites (see column 5, lines 10-13).

Regarding claims 12-14, Riley '162 discloses up to 30% or significantly lower (see claim 3, and column 1, lines 19-26).

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Regarding claims 15-16, 19, and 21, Riley '162 discloses precious metals for both nitrous oxide and NOx (see column 4, lines 65-68 and column 8, lines 50-51).

6. Claims 1-7, 10-16, 18-19, and 21 are rejected under 35 U.S.C. 102(b) as being unpatentable over Kato et al. US 4,571,329 in view of Fetzer '928.

Regarding claims 1 and 18, Kato '329 discloses a process for ammonia reduction of nitrous oxide comprising contacting nitrous oxide containing gas with ammonia (abstract) and zeolite (see column 3, lines 43-48).

Kato fails to disclose beta zeolite.

Fetzer '928 discloses beta zeolite (see above).

It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the beta zeolite of Fetzer in the nitrous oxide decomposition process of Riley because Fetzer discloses his beta zeolite as particularly suitable to make possible the reduction or decomposition of nitrous oxide (see column 4, lines 14-23).

Regarding claims 2-4, Kato '329 discloses 300-500 degrees Celsius (see column 7, line 30).

Regarding claims 5-7 and 12-14, Kato '329 discloses 1000 ppm of N₂O and ammonia (see column 7, lines 22-25).

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Regarding claims 10-11, Kato '329 discloses Fe exchanged zeolite (see column 4, lines 23-25).

Regarding claims 15-16, Kato '329 discloses removal of NO_x and N₂O (abstract).

Regarding claims 19 and 21, Kato '329 discloses a first NO_x reduction zone and a second N₂O reduction zone (see column 5, lines 26-40).

7. Claims 1-3, 10-11, 15, and 18-20 are rejected under 35 U.S.C. 102(b) as being unpatentable over Tsuchitani et al. US 5,756,057 in view of Fetzer '928.

Regarding claims 1 and 18, Tsuchitani '057 discloses a method for removal of NO_x comprising contacting a stream containing N₂O (see column 4, lines 33-36) with reducing agent such as ammonia (see column 4, lines 41-43 and 48-50) and a catalyst comprising a zeolite (see column 5, lines 7-11, Example 21, and Table 1).

Tsuchitani fails to disclose beta zeolite.

Fetzer '928 discloses beta zeolite (see above).

It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the beta zeolite of Fetzer in the nitrous oxide decomposition process of Riley because Fetzer discloses his beta

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zeolite as particularly suitable to make possible the reduction or decomposition of nitrous oxide (see column 4, lines 14-23).

Regarding claims 2-3, Tsuchitani '057 discloses a temperature of 400 degrees (see column 20, lines 46-59 and 65-66).

Regarding claims 10-11, Tsuchitani '057 discloses exchanging with an ionic copper amine complex (see Example 21).

Regarding claims 15 and 19-20, Tsuchitani '057 discloses a method for removal of NO_x comprising contacting a stream containing N₂O followed by adsorption of NO₂ (see column 4, lines 33-41).

Response to Arguments

8. Applicant's arguments filed 1/20/04 have been fully considered but they are not persuasive.

It is argued that present claim 1 is directed to... BETA zeolite. This is not persuasive because Fetzer nowhere discloses that beta zeolite is removed after stage B, as Applicant appears to suggest. Fetzer discloses both the use of beta zeolite and "use of ammonia in stage C", and also that the streams of A and B are put through stage C (see column 4, lines 28-30). Therefore, the stream from stage B, which contains beta zeolite, is contacted with ammonia in stage C.

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It is argued that Fetzer does not disclose or suggest... presented in claim 18. This is not persuasive for the reasons above.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward M.


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Johnson whose telephone number is 571-272-1352. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman can be reached on 571-272-1358. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-0987.

EMJ
April 5, 2004


STANLEY S. SILVERMAN
SUPERVISORY PATENT EXAMINER
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